

Clean Water Act 319(h) Final Report for

Grant # C9994861-97

The Big Sandy Soil Erosion Abatement Project (SEAP)

Workplan # 12

Memorandum of Agreement # M-99006524

Project Period: December 1, 1998 to June 30, 2004

Submitted by Lillian Wheeler, Project Manager

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ACKNOWLEDGMENTS

Americana Productions (Michael Breeding, owner): This firm (and Michael Breeding) took the script written by a local committee and turned it into a video that we are all proud of. Special thanks goes to the Producer, Michael Breeding, who made the video “The Big Sandy: Clean Water Begins with You!” as a work of art.

Big Sandy Area Development District: Provided assistance with interpretation of GIS data and the repository site for GIS information for the Johns Creek watershed. This work included applying the Universal Soil Loss Equation to raw GIS data. A special thanks goes to David Gardner and Neal Parsons.

Big Sandy Resource Conservation and Development (RC&D) Council and Executive Board: Provided the oversight and committees (workers) necessary to plan, coordinate, and carry-out the measures of the Big Sandy Soil Abatement Project (SEAP). This included everything from writing checks to being on the script writing committee for the video that was produced. Some of the more active RC&D Council members were: Lon May, Carolyn Moore, Stephanie Young, and Lillian Wheeler.

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Johnson County Conservation District: Provided administrative help to include brochure printing and mailings for targeted watersheds. Special thanks goes to Christy Nilipowitz.

Kentucky Division of Abandoned Mine Lands: Tirelessly search the Big Sandy area for mine reclamation sites that would meet the required criteria for this project. Although the search did not turn up any eligible sites, the effort did pay-off with a better understanding of reclamation needs in the area. Special thanks goes to Phillip Slone.

Kentucky Division of Fish and Wildlife: Provided technical assistance and participated in the workshops and field days. Of particular note was Wildlife Biologist Jason Plaxico who also gave us very good advice and Bill Sampson who explained the “Stream Restoration & Enhancement Program” at our last field day.

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Martin County Conservation District: Provided woodland owner contacts and did mailings to targeted watersheds. Special thanks goes to the Martin County Conservation District Secretary, Carolyn Moore, for being the Treasurer for the Big Sandy SEAP.

Murray State University (Mid America Remote Sensing Center): Did the planimeter work and compilation of data for the Johns Creek GIS “layer” that was later formatted by the Big Sandy Area Development District.

Pike County Conservation District: Provided mailings to landowners in the Johns Creek watershed. Special thanks goes to Lisa Birchfield.

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EXECUTIVE SUMMARY

The Big Sandy Soil Erosion Abatement Project (SEAP) covers the area in Kentucky that is drained by the Big Sandy River and its tributaries. The Big Sandy SEAP started December 1, 1998 and ended June 30, 2004. During this time period an outreach effort was made to target woodland owners to enlist them to complete a “Stewardship Plan” that would be certified through the KY Division of Forestry and install silviculture BMP practices. A revision to the Big Sandy SEAP also added BMP demonstrations with streambank erosion (using bio-engineering) and non-point “watershed stewardship” education. Landowners, general citizens, students, contractors, local governments, and agencies were targeted with BMP demonstrations, field days, and materials used in a non-point source educational outreach program. There was also a GIS component for the Johns Creek watershed which provided the location and an estimate of the erosion taking place in the watershed that had 10 percent or less plant cover. Objectives of the Big SEAP:

1. Demonstrate erosion control Best Management Practices associated with woodland harvesting.
2. Demonstrate erosion control using Bio-Engineering on eroding streambanks.
3. Promote awareness of non-point source pollution and encourage citizens to prevent non-point source pollution (video & interpretive signs).
4. Provide sediment / erosion GIS data for targeting erosion control efforts in the Johns Creek watershed.

The first objective was accomplished by installing woodland harvesting BMPs at the Turkey Creek site in Floyd County. This was also the site for a woodland owners demonstration day and workshop. The second objective was accomplished when a Bio-Engineering Workshop was held at Middle Creek, the site of 150 feet of streambank stabilization using bio-engineering practices. A streambank stabilization field day was also held at Buffalo Creek where 370 feet of bio-engineering practices were installed. The third objective was accomplished with the production of the video, “The Big Sandy: Clean Water Begins with You!” and the installation of 13 water quality interpretive signs at the Big Sandy Technical & Community College. The fourth objective was accomplished with the production and interpretation of GIS data and layers that were used to produce maps to identify sites of severe erosion in the John Creek watershed.

INTRODUCTION

Water quality in the Big Sandy River watershed in eastern Kentucky is influenced by construction clearing, mining, timbering, and the everyday decisions of the citizens that reside in the river basin. The Big Sandy River watershed is adversely impacted by non-point pollution because of the activities associated with business and living (construction, logging, & mining), sewage from “straight pipes” or failing septic disposal systems, and improper disposal of used oil and other chemicals.

PROJECT GOALS, OBJECTIVES, AND ACTIVITIES

Goals:

- 1) To get landowners and other decision makers to plan and install conservation practices related to non-point pollution reduction.

- 2) To demonstrate good land use of woodland, stream buffer areas, and other land that has been affected by clearing or construction activities.
- 3) To raise the awareness of citizens in the Big Sandy River watershed concerning water quality issues.

Objectives:

- 1) Increase use of approved BMPs on critically eroding sites to reduce stream pollutants.
- 2) Use demonstration sites to educate landowners of BMP benefits and successes.
- 3) Develop a public education/technical assistance program focusing on nonpoint source pollutions.
- 4) Utilize remote sensing technology to target BMP application in the Johns Creek watershed.

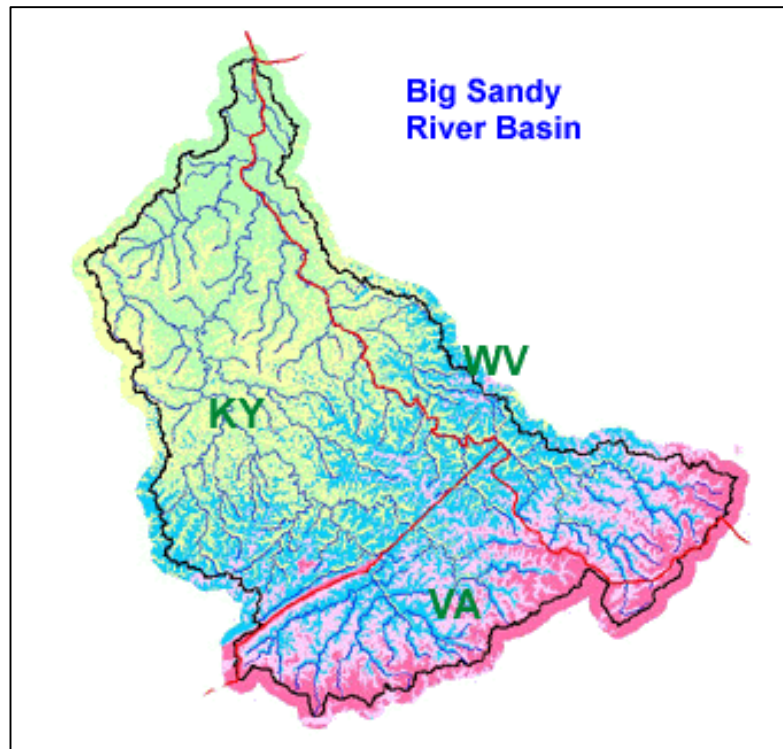
Activities: Originally the project activities were in four different categories:

- 1) Reclamation Demonstrations;
- 2) Silvicultural Demonstrations;
- 3) Technical Assistance; and
- 4) GIS Inventory (Johns Creek Watershed).

A suitable non-bonded reclamation site related to pre-1977 mining was not found. So stream bank stabilization demonstrations were substituted for mining related reclamation demonstrations. Also, landowners did not sign up for silvicultural demonstrations. After consulting with the KY Division of Water (Non-point Source Pollution Section) it was determined that non-point pollution reduction education was needed to raise the awareness of landowners and citizens in the Big Sandy River watershed. A “call to action” video was added to the project to educate citizens about what they could do to prevent or reduce non-point pollution. Interpretive signs were added to give students and citizens background information about watershed stewardship and macro invertebrate identification ID sheets were provided to help students and citizens survey and monitor water quality as related to non-point source pollution reduction.

MATERIALS & METHODS

The Big Sandy River flows along the eastern border of the Commonwealth of Kentucky. The river flows north and empties into the Ohio River. The basin encompasses an area of about 2,300 square miles, which represents slightly more than 5 percent of the Commonwealth of Kentucky.



The physiographic region is the Eastern Coalfield. The topography is generally steep, rugged mountains that have long sharp ridges and are separated by deep coves and narrow valleys forming a many branched pattern of streams that drain the basin. Bedrock is mostly sandstone, siltstone, shale, coal, and limestone of the Pennsylvanian, Mississippian, and Devonian systems. The most extensive geology is of the Breathitt and Lee formations. Elevation ranges from 500 to 3,200 feet above sea level.

GIS mapping for John Creek watershed.): Approx. 205 sq. miles: The GIS portion of the Big Sandy SEAP targeted the John's Creek watershed. Mid-America Remote Sensing (Murray State University) procured the latest aerial photography and did the planimeter work. GIS mapping for the Johns Creek watershed was done to identify areas bigger than 2 acres with 10% or less plant cover. Other GIS layers (slope & soils) were overlaid and the universal soil loss equation was used to identify the areas with the most erosion and stream sedimentation. This information has been archived by the Big Sandy Area Development District and will serve as a reference in future water quality efforts for the Johns Creek watershed. See the enclosed maps for the results of this GIS work.

Acres of Woodland Stewardship Plans done by consulting foresters: 1,259 acres

Linear feet of streambank stabilization installed: 770 linear feet: The BMPs used for the Forest Stewardship planning portion of the Big Sandy SEAP were adapted from Kentucky Forest Practice Guidelines for Water Quality Management 1997 and Field Guide to Best Management Practices for Timber Harvesting in Kentucky both published by the Cooperative Extension Service and the KY Division of Forestry. The BMPs used for the streambank stabilization demonstration portion of the Big Sandy SEAP were adapted from Stream Corridor Restoration: Principles, Processes, and Practices published October 1998 by the federal government (multi-agency) and the National Engineering Field Manual published by USDA, Natural Resources Conservation Service. No new BMPs were developed or revised.

Number of copies of "The Big Sandy: Clean Water Begins with You!" distributed: 650 each: Citizen awareness of water quality issue awareness was raised with the production of a video. The video "The Big Sandy: Clean Water Begins with You!" was produced as a result of this grant. This video has gotten rave reviews. It has been shown on the Kentucky Educational Television (KET) network and numerous cable stations in our area. Every Earth Day there is a promotion to have the video shown on local cable stations. The Johnson County Cooperative Extension Service shows the video to all the 5th Graders in the county as part of their 4-H program each year. Numerous civic groups, church groups, and senior citizen centers have been shown the video. The video has been distributed to all of the Big Sandy watershed's conservation districts, public libraries, fiscal courts, and schools both public and private.

Number of Interpretive Signs installed: 13 each

Number of laminated macro-invertebrate ID sheet sets distributed: 350 sets (25 sheets in each set): To compliment the video and to get "hands-on" non-point pollution reduction education and awareness in our schools a set of laminated macro invertebrate identification (ID) sheets were printed in color. These ID sheets are laminated so they can be used along a stream. The sheets facilitate water quality surveys that go along with water quality monitoring in our

area. This teaching aid has also received rave reviews and there has been some discussion about producing these sheets for statewide distribution.

A set of thirteen interpretive signs on watershed stewardship was installed along a one third mile long nature trail at the Big Sandy Technical & Community College in Prestonsburg, KY.

RESULTS & DISCUSSION

What did not go exactly right and corrective actions: The Big Sandy SEAP was designed to do demonstration projects on eroding woodland sites and mining reclamation sites (“pre-law” or prior to August 1977). Early in the project 4,000 brochures explaining the Big Sandy SEAP woodland assistance program were printed and distributed by mail, by conservation districts, and by Cooperative Extension Service boards. In particular, the Johns Creek watershed was heavily covered with 1,110 direct mailings. As a result of this outreach, not one landowner signed up for the woodland erosion control demonstration which included a cost-share incentive. A mine reclamation site on Little Mud Lick in Johnson County was determined to not be eligible under the “pre-law” or prior to August 1977 conditions. This ineligibility meant that EPA funds could not be used for a mine reclamation demonstration project at the site. The KY Division of Abandoned Mine Lands (AML) was approached about eligible abandoned mine sites that were “priority 3” (non-life threatening or property threatening) that were in need of erosion control measures. An extensive field search done by both the KY AML and the USDA NRCS found no sites that were eligible under federal rules. At this point the sponsors of the Big Sandy SEAP consulted with the KY Division of Water (Non-Point Source Section) to do an evaluation of what had already been accomplished or attempted and also to determine “where to go from here”. The consensus was that woodland management or silviculture had a low priority with landowners and that woodland erosion was not as an extensive problem as first estimated. This combination of apathy and lack of opportunity required a redirection to what landowners perceived as an erosion problem. Again, a consensus was reached that demonstrations could be done on streambank erosion problems. It was agreed that bio-engineering methods would be used and that an educational component would be included to teach landowners about working with nature and not channeling or adversely modifying a stream. To address the problem of apathy, the KY Division of Water suggested that a non-point source “watershed stewardship” education component be added that would include a video and other educational materials. This suggestion was also incorporated in a revised plan. As a result of the revised plan the Big Sandy SEAP avoided failure and was able to successfully reach a larger audience with a non-point source message that was effective and timely.

Findings of the GIS portion of the Big Sandy SEAP: Johns Creek is one of the larger streams not meeting or not supporting the intended use of its waters. The soils that are in the watershed have some of the highest erodibility factors (the “K” factor in the Universal Soil Loss Equation). The Johns Creek watershed supplies the water for Dewey Lake. Because of the erodibility of the soils and construction / mining activity a large sediment load has shortened the life of Dewey Lake. In order to map and prioritize the erosion problem a GIS layer was made by Mid America Remote Sensing (Murray State University). This GIS layer was developed by using the latest ortho-photography. Sites with 10 % or less cover were measured and delineated for the GIS layer. Other layers and information were obtained from NRCS (soils) and other sources (slope, distance to stream, etc.). This data was then further processed by the Big Sandy Area Development District (Neil Parsons, Development/Technology Associate). NRCS soils

data was plugged into the Universal Soil Loss Equation and combined with aerial photo and topographic information to come up with a predicted annual soil loss per acre of each site. This model may not be exact but it does give comparative values to help prioritize erosion control efforts in the Johns Creek watershed. See the attached maps for further results of the GIS study.

Metadata for GIS maps: Maps were developed by the Big Sandy Area Development District (ADD), Neil Parsons, Development/Technology Associate. Software used was a combination of ESRI 9.0 and Map Info 6.5. Maps are housed and available on request at the Big Sandy ADD, 100 Resource Drive, Prestonsburg, KY 41653. See Appendix C for a copy of the maps.

Results of the BMP portion of the Big Sandy SEAP: The adapted BMP portion of the Big Sandy SEAP dealt with demonstrations of woodland harvesting BMPs and streambank stabilization BMPs. A woodland owners workshop was conducted at Turkey Creek where waterbars were installed while landowners watched. Dr. Jeff Stringer (UK Cooperative Extension Service) and private consultant Pat Cleary gave presentations on woodland harvest planning and BMP installation. The streambank stabilization BMP initiative included a bio-engineering workshop organized by the KY Waterways Alliance. The classroom portion of this three day workshop was conducted at the Mountain Arts Center in Prestonsburg, KY. On the final day, this workshop involved participants in the installation of 110 linear feet of bio-engineering planting on the nearby Middle Creek Battlefield site.

Results of the Educational portion of the Big Sandy SEAP: The video “The Big Sandy: Clean Water Begins with You” will continue to be distributed and shown. The Big Sandy RC&D council plans to continue purchasing copies as needed to give during conservation teaching workshops attended by formal and informal educators. They also intend to continue promoting watershed stewardship with this classic video each year during Earth Day activities. This promotion would include soliciting local cable TV companies to show the video as a PSA. This video is intended to reach upper primary grade students to adult citizens.

Education materials and interpretive signs produced through the Big Sandy SEAP will continue to be used for many years. The laminated macro-invertebrate identification sheets are sealed from moisture and printed on heavy stock paper for durability. They are also high quality and are highly prized by the educators that have received them. Selective distribution has been made with copies going to formal and informal educators that have taken water quality monitoring and surveying training. The ID sheets are intended to be used by upper primary grade students to senior high school students.

The thirteen interpretive signs at the Big Sandy Technical & Community College will continue to be used by the college’s outreach program and the East Kentucky Science Center (located on the college campus). The full color signs are component designed with each item capable of being replaced individually. These signs have been adopted by the Big Sandy Watershed Watch group. The signs will be kept repaired and maintained as necessary by this group and the college. The signs are at the sixth grade reading level and are intended to be read by the general public.

CONCLUSIONS

All of the milestones submitted with the application (as revised) were achieved. A quick evaluation of goal achievement follows:

Measures of Success (Summary):

Goal 1: To get landowners and other decision makers to plan and install conservation practices related to non-point pollution reduction.

Three large-scale streambank stabilization measures (Buffalo Creek, Middle Creek, and Paint Creek) were installed. Landowners cost shared with these erosion control measures. Forest harvesting erosion control measures were also installed at the Turkey Creek site owned by the Floyd County Fiscal Court.

Goal 2: To demonstrate good land use of woodland, stream buffer areas, and other land that has been affected by clearing or construction activities.

The site at Middle Creek was used during a 3 day bio-engineering workshop that the KY Waterways Alliance co-hosted. Participants in the workshop actually installed some of the plant materials on the site.

The Buffalo Creek site was used with a field day where the KY Division of Fish & Wildlife explained their stream restoration program.

A one day woodland workshop for landowners was conducted in the Turkey Creek site. At this site waterbars and other erosion measures were installed. Landowners actually saw the waterbars being installed with a dozer. The University of KY co-hosted this event.

Woodland planning efforts were furthered by using consultant foresters to plan a “Stewardship Plan” with landowners throughout the Kentucky portion of the Big Sandy River basin. These plans were reviewed and approved by the KY Division of Forestry.

Goal 3: To raise the awareness of citizens in the Big Sandy River watershed concerning water quality issues.

The video “The Big Sandy: Clean Water Begins with You!” was produced as a result of this grant. This video has gotten rave reviews. It has been shown on the Kentucky Educational Television (KET) network and numerous cable stations in our area. Every Earth Day there is a promotion to have the video shown on local cable stations. The Johnson County Cooperative Extension Service shows the video to all the 5th Graders in the county as part of their 4-H program each year. Numerous civic groups, church groups, and senior citizen centers have been shown the video. The video has been distributed to all of the Big Sandy watershed’s conservation districts, public libraries, fiscal courts, and schools both public and private.

To compliment the video and to get “hands-on” non-point pollution reduction education and awareness in our schools a set of laminated macro invertebrate identification (ID) sheets were printed in color. These ID sheets are laminated so they can be used along a stream. The sheets facilitate water quality surveys that go along with water quality monitoring in our area. This teaching aid has also received rave reviews and there has been some discussion about producing these sheets for statewide distribution.

A set of thirteen interpretive signs on watershed stewardship was installed along a one third mile long nature trail at the Big Sandy Technical & Community College in Prestonsburg, KY.

Recommendations based on the experience with the Big Sandy SEAP:

Some of the following recommendations are being carried out in other watersheds in Kentucky.

1. Work with Resource Conservation & Development (RC&D) areas, watershed groups, and other grassroots organizations to adapt and produce localized non-point source “watershed stewardship” videos for the major watersheds of Kentucky. This is being done with the Cumberland Valley RC&D and possibly the Mammoth Cave RC&D.
2. Work with the KY Division of Water, the EPA, the Cooperative Extension Service, the KY Waterways Alliance, and other education groups to produce more macro-invertebrate ID sheet sets. Take the Big Sandy SEAP’s basic idea: Provide durable full color ID sheets to be used by a class of students at the stream site to rate a stream’s water quality.
3. Have a cooperative agreement between the KY Division of Water, the KY Division of Fish & Wildlife, and the KY Transportation Cabinet to always have an educational outreach effort with every stream restoration project that is installed. Then work with conservation districts, RC&D areas, the Cooperative Extension Service, and other groups, agencies, and local governments to sponsor advertising, field days, food, etc.
4. Work with the Cooperative Extension Service (CES), the KY Association for Environmental Education, the KY Waterways Alliance and others to adapt and produce “Living Along a Kentucky Stream” (an existing CES publication). Along with this publication, produce a localized insert for each major watershed in KY that would share facts about the watershed and also have some non-point learning activities for students to do.

LITERATURE CITED

- *Field Office Technical Guide* (Updated by sections) USDA, Natural Resources Conservation Service.
- *Kentucky Forest Practice Guidelines for Water Quality Management* (April 1992 and revised 1997) Cooperative Extension Service, Division of Forestry, Department for Natural Resources, Natural Resources and Environmental Protection Cabinet.
- *Kentucky Best Management Practices for Construction Activities* (August 1994) KY Division of Conservation and KY Division of Water.
- *Stream Corridor Restoration: Principles, Processes, and Practices* (October 1998) The Federal Interagency Stream Restoration Working Group.
- *National Engineering Field Manual* (Updated by sections) USDA, Natural Resources Conservation Service.

APPENDIX A. FINANCIAL and ADMINISTRATIVE CLOSEOUT

Original Big Sandy RC&D Outputs – As of December 1998

Milestone	Expected Begin/End
1. Form Oversight Committee and hold meetings as necessary.	03/99 – 05/02
2. Develop and submit materials for news media.	03/99 – 05/02
3. Prepare and submit BMP Implementation Plans.	03/99 – 04/99
4. GIS Survey Data Compilation.	03/99 – 09/99
5. Publish BMP/Cost Share Brochure.	03/99 – 03/00
6. Big Sand SEAP Technical Assistance.	04/99 – 03/02
7. Promote Demonstration Program and Solicit Applications.	04/99 – 05/01
8. Review Project Applications and Prioritize.	04/99 – 06/01
9. Survey BMP Demonstration Sites.	04/99 – 07/99
10. Install BMP Demo Projects with the DOW approved BMP Implemen. Plan.	06/99 – 07/00
11. Prepare and submit annual report and presentation at DOW Conference.	09/99 – 09/02
12. Conduct 2 Field Days on Demo Sites	10/99 – 10/01
13. Target areas using GIS Survey Data.	10/99 – 01/01
14. Promote Demonstration Program and Solicit Applications.	12/99 – 04/01
15. Review Project Applications and Prioritize.	04/99 – 06/01
16. Survey BMP Demonstration Sites.	04/99 – 05/01
17. Notification for KY DOW of Field Day & approval of agenda.	05/00 – 09/01
18. Conduct Field Day to showcase BMPs.	10/01 – 05/02
19. Submit Project Final Report.	05/02 – 06/02

Once the project got underway and mining sites were researched and investigated, it became obvious that a suitable non-bonded reclamation site related to pre-1977 mining would not be found. Also, it became apparent that landowners did not desire to sign up for silvicultural demonstrations.

After consulting with the KY Division of Water, a change in scope of service was submitted and approved by the Division. Stream bank stabilization demonstrations were substituted for mining related reclamation demonstrations. Because nonpoint source reduction education was needed to raise the awareness of landowners and citizens in the Big Sandy River watershed, a “call to action” video was added to the project to educate citizens about what they could do to prevent or reduce non-point pollution. Interpretive signs were added to give students and citizens background information about watershed stewardship and macro invertebrate identification ID sheets were provided to help students and citizens survey and monitor water quality as related to nonpoint source pollution reduction.

A list of updated outputs, all of which were completed, follows.

Revised Big Sandy RC&D Outputs – As of June 2001

Milestone	Date Completed
1. Form Oversight Committee and hold meetings as necessary.	06/04
2. Develop and submit materials for news media.	06/04
3. Prepare and submit BMP Implementation Plans.	05/99
4. GIS Survey Data Compilation.	06/01
5. Publish BMP Cost Share Brochure.	01/00
6. Big Sand SEAP Technical Assistance.	06/04
7. Promote Demonstration Program and Solicit Applications.	09/03
8. Review Project Applications and Prioritize.	06/01
9. Survey BMP Demonstration Sites.	09/03
10. Install BMP Demo Projects with the DOW approved BMP Implemen. Plan.	05/04
11. Prepare and submit annual report and presentation at DOW Conference.	07/03
12. Notify KY DOW of workshops & review/approval of workshop material.	09/02
13. Conduct 2 Workshops: Bio Engineering for Streambanks. Woodland harvesting BMPs.	10/03
14. Target areas using GIS Survey Data.	10/03
15. Promote Demonstration Program and Solicit Applications.	09/03
16. Review Project Applications and Prioritize.	10/03
17. Survey BMP Demonstration Sites.	09/03
18. Notification for KY DOW of Field Day & approval of agenda.	04/04
19. Conduct Field Day to showcase BMPs.	05/04
20. Submit Project Final Report.	10/04
21. Draft Script submitted to KY DOW for educational video.	06/02
22. Draft design for interpretive watershed signs.	05/03
23. Submit sign design to KY DOW for review and approval.	05/03
24. Contract the video taping.	06/02
25. Contract interpretive signs fabrication and installation.	06/03

Budget Summary

Actual funds spent on Big Sandy SEAP by budget category:

Category	Budgeted 319(h)	Budgeted Match	Total Budgeted	Cumulative Report Totals
BMP Implementation & Education	\$119,170.00	\$24,930.00	\$144,100.00	\$148,244.29
Cumulative Spent			\$148,244.29	
Balance			-\$4,144.29	
Technical Assistance & Coordination	\$24,200.00	\$84,200.00	\$108,400.00	\$78,249.36
Cumulative Spent			\$78,249.36	
Balance			\$30,150.64	
GIS Inventory (Johns Creek)	\$6,500.00	\$2,000.00	\$8,500.00	\$7,410.00
Cumulative Spent			\$7,410.00	
Balance			\$1,090.00	
	319(h)	Match	Total	
Totals	\$149,870.00	\$111,130.00	\$261,000.00	\$233,903.65
Total Cumulative Spent	\$134,307.48	\$99,596.17	\$233,903.65	
Balance to Spend	\$15,562.52	\$11,533.83	\$27,096.35	

The Big Sandy RC&D Area, Inc. was reimbursed a total of \$134,307.48. A total of \$15,562.52 federal funds remain unspent. This surplus was due to less expenses for Technical Assistance (Consultant Foresters) and less expenses for the GIS inventory for Johns Creek.

The Big Sandy SEAP project was revised once. The original budget (before revision) is shown below:

Detailed Original Budget (December 1998):

Project Totals (December 1998) by Major Category:

	EPA 319(h) Funds	Non-Federal Funds	Total Funds
*Reclamation Demonstration	\$28,720	\$2,880	\$31,600
(This portion of the Big Sandy SEAP was revised and the funds were spent on streambank stabilization demonstrations & educational outreach)			
*Silvicultural Demonstration	\$40,050	\$22,050	\$62,100
(This portion of the Big Sandy SEAP was revised and the funds were spent on streambank stabilization demonstrations & educational outreach)			
Technical Assistance & Coord.	\$74,600	\$114,200	\$188,800
GIS Inventory (Johns Creek)	\$6,500	\$2,000	\$8,500
Totals	\$149,870	\$141,130	\$291,000

Reclamation Demonstration (This portion of the Big Sandy SEAP was revised September 2002 and the funds were spent on streambank stabilization demonstrations and educational outreach).

<u>Practice/Elements</u>	<u>Approx. No of Cost per Unit</u>	<u>Units</u>	<u>EPA 319(h) Funds</u>	<u>Non- Federal Funds</u>	<u>Total</u>
Critical Area Treatment	\$820 per acre	16 acres	\$13,120	\$0	\$13,120
Sediment Control Structures	\$2,100 per site	6 sites	\$12,600	\$0	\$12,600
Reforestation (Tree Planting)	\$200 per acre	15 acres	\$3,000	\$0	\$3,000
Manual Labor for Practices	\$6 per hour	480 hours	\$0	\$2,880	\$2,880
Total EPA 319(h) Demonstration Funds			\$28,720		
Total Non-Federal Demonstration Funds				\$2,880	
Total Demonstration Funds					\$31,600

Silvicultural Demonstrations (This portion of the Big Sandy SEAP was revised September 2002 and the funds were spent on streambank stabilization demonstrations and educational outreach).

<u>Practices</u>	<u>Approx. No of Cost per Unit</u>	<u>Units</u>	<u>EPA 319(h) Funds</u>	<u>Non- Federal Funds</u>	<u>Total</u>
Critical Area Seeding	\$615 per acre	50 acres	\$30,750	\$10,250	\$41,000
Water Bar Structures	\$0.75 per lin.	5,200 lin. ft.	\$3,900	\$1,300	\$5,200
Reforestation	\$75 per acre	24 acres	\$1,800	\$600	\$2,400
Biologs & Silt Fences	\$1.20 per lin. ft.	3,000 lin. ft.	\$3,600	\$0	\$3,600
Equipment Rental	\$20 per hour	300 hours	\$0	\$6,000	\$6,000
Treasurers Time	\$15 per hour	260 hours	\$0	\$3,900	\$3,900
Total EPA 319(h) Silvicultural Demonstration Funds			\$40,050		
Total Non-Federal Funds				\$22,050	
Total Silvicultural Demonstration Funds					\$62,100

Technical Assistance

	<u>EPA 319(h) Funds</u>	<u>Non-Federal Funds</u>	<u>Total Funds</u>
Project Coordinator/Resource Conservationist Salary & Benefits (3 Staff Year)	\$68,400	\$21,600	\$90,000
Travel for Project Coordinator (30,000 Miles @ 0.28 per mile)	\$0	\$8,400	\$8,400
Part Time Secretarial Salary & Benefits	\$0	\$18,000	\$18,000
Promotional & Educational Materials	\$2,000	\$6,000	\$8,000
Office Space (300 sq. Ft. For 2 years)	\$0	\$7,200	\$7,200
Mailings (4,000) pieces @ 0.50 each)	\$0	\$2,000	\$2,000
Field Days Cost	\$0	\$9,000	\$9,000
Cooperative Extension Service (4 agents – 250 hrs each) (1/2 Staff Year)	\$0	\$12,000	\$12,000
KY Div. of Forestry (2 foresters – 500 hrs each – 1/2 Staff Year)	\$0	\$12,000	\$12,000
KY Div. of Fish & Wildlife (W. Biologist – 250 hrs each) (1/4 Staff Years)	\$0	\$6,000	\$6,000
KY Div. Of Abandoned Mines (Technical Assistance – 125 hrs)	\$0	\$3,000	\$3,000
UK Dept. Of Forestry (Tech Assistance - 125 hrs) (1/8 Staff Year)	\$0	\$3,000	\$3,000
Big Sandy ADD - GIS Repository for Area (Labor & Site) (1/8 Staff Year)	\$0	\$5,000	\$5,000
Audit of Grant	\$4,200	\$1,000	\$5,200
Total EPA 319(h) Tech. Assistance Funds	\$74,600		
Total Non-Federal Tech. Assistance Funds		\$114,200	
Total Technical Assistance Funds			\$188,800

GIS Inventory (Johns Creek Watershed)

	<u>EPA 319(h) Funds</u>	<u>Non-Federal Funds</u>	<u>Total Funds</u>
GIS Data Maps	\$6,500	\$0	\$6,500
GPS Machine	\$0	\$2,000	\$2,000
Total EPA 319(h) funds	\$6,500		
Total Non-Federal Funds		\$2,000	
Total GIS Inventory Funds			\$8,500

Revised Budget (Budget revision was approved by the KY Division of Water)

The revised budget (September 2002) combined the reclamation and silvicultural demonstration categories into one category: BMP Implementation & Education. In addition, streambank stabilization using bioengineering methods was authorized for BMP demonstrations. Education included a watershed stewardship video and interpretive signs.

Big Sandy Soil Erosion Abatement Project (As of Sept 2002)

Budget Category	319(h)	Match	Total
BMP Implementation & Education	\$119,170	\$24,930	\$144,100
Technical Assistance & Coordination	24,200	84,200	108,400
GIS Inventory (Johns Creek)	6,500	2,000	8,500
Total	\$149,870	\$111,130	\$261,000

Detailed Budget (September 2002): The categories of Reclamation Demonstration and Silviculture Demonstration were combined into one category: BMP Implementation & Education.

BMP Implementation & Education

<u>Practices/Elements</u>	<u>Cost per Unit</u>	<u>Approx. No. of Units</u>	<u>EPA 319(h) Funds</u>	<u>Non- Federal Funds</u>	<u>Total</u>
Streambank stabilization Using bio-engineering	\$50 per lin.ft.	600 lin.ft.	\$30,000	\$7,500	\$37,500
Forestry Workshop & Demonstration	\$4,000 per Demonstration	1 Demo	\$4,000	\$100	\$4,100
Streambank Bio-engineering					
Middle Creek	\$25,500 per Workshop	1 Workshop	\$21,000	\$4,500	\$25,500
Buffalo Creek	\$19,500 per Field Day	1 Field Day	\$16,000	\$3,500	\$19,500
Silviculture BMPs		46 acres	\$22,506	\$8,484	\$30,990
Video Production	\$15,000 per vid	1 Video	\$15,000	\$0	\$15,000
Interpretive Signs	\$820.31 each	13 signs	\$10,664	\$846	\$11,480
Total EPA 319(h) Funds for BMP Implementation & Education			\$119,170		
Total Non-Federal Funds for BMP Implementation & Education			\$24,930		
Total Funds for BMP Implementation & Education			\$144,100		

Notes concerning budget:

1. No equipment was purchased for the Big Sandy SEAP.
2. No special grants conditions were placed on the Big Sandy SEAP by USEPA.